IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method of indoor positioning in a structure having corridors and/or walls extending in substantially perpendicular longitudinal and lateral directions, the method comprising the acts of:

providing base stations including a first base station with an antenna having a cosec^2 sensitivity pattern oriented longitudinally and a second base station with an antenna having a cosec^2 sensitivity pattern oriented laterally;

providing a mobile station with an omnidirectional antenna;

transmitting a ranging signal from one of the base ~~station~~ stations and the mobile station to the other of the mobile station and base ~~station~~ stations; and

determining a relative signal strength of the received ranging

signal compared with the transmitted ranging signal to obtain a measure of lateral distance of the base ~~station~~ stations from the mobile station.

claims 2-3 (Canceled)

4.(Currently Amended) The method according to ~~claim 2~~ claim 1, further comprising the acts of:

providing a third base station;

transmitting a ~~third~~ further ranging signal from one of the third base station and the mobile station to the other of the third base station and the mobile station; and

determining the position of the mobile station using data from the ranging signals transmitted between the base stations and the mobile station.

5.(Previously Presented) the method according to claim 4, wherein the third base station is provided with an antenna having a $cosec^2$ sensitivity pattern oriented vertically.

6.(Currently Amended) A system including base ~~station~~ stations for use in positioning a mobile station in a structure having longitudinal and lateral directions, each of the base stations comprising:

an antenna; and

a transmitter and/or receiver arranged to transmit and/or receive ranging signals to and/or from the mobile station through the antenna;

wherein the antenna has a $cosec^2$ sensitivity pattern for orientation longitudinally, laterally or vertically in the building for determination of a lateral distance between the base ~~station~~ stations and the mobile station, and

wherein a first base station is configured to transmit in a longitudinal direction, a second base station is configured to transmit in a lateral direction, and a third base station is configured to transmit in a vertical direction.

7.(Currently Amended) ~~A~~ The system ~~for the positioning of the mobile station in the structure having corridors and walls extending in substantially perpendicular longitudinal and lateral~~

~~directions, the system comprising:~~

~~a plurality of base stations~~ according to claim 6; wherein the mobile station has an omnidirectional antenna; and

wherein the system is arranged to transmit the ranging signals between the mobile station and the base stations and to measure attenuation of received ranging signals relative to transmitted strengths of the ranging signals.

8. (Previously Presented) The system according to claim 7, further comprising code for calculating position of the mobile station from measured attenuation values and positions of the base stations.

claims 9-10 (Canceled)

11. (Previously Presented) The base station of claim 6, wherein the antenna having the cosec^2 sensitivity pattern is configured to obtain a measure of the lateral distance of the base station from the mobile station.

12. (Currently Amended) A system for determining a position of a mobile station in a structure, the system comprising ~~a~~ base ~~station~~ stations each having an antenna with a $cosec^2$ sensitivity pattern for orientation longitudinally, laterally or vertically in the structure, wherein the base ~~station is~~ stations are configured to transmit a signal to the mobile station for determination of ~~a~~ lateral ~~distance~~ distances between the base ~~station~~ stations and the mobile station;

wherein the base stations include:

a first base station having the antenna with the $cosec^2$ sensitivity pattern oriented in a longitudinal direction in the structure;

a second base station having a second antenna with the $cosec^2$ sensitivity pattern oriented in a lateral direction in the structure; and

a third base station having a third antenna with the $cosec^2$ sensitivity pattern oriented in a vertical direction in the structure.

13. (Currently Amended) The system of claim 12, wherein at

least one of the mobile station and a first base station of the base ~~station~~ stations is configured to determine the position by comparing a received strength of a signal received by the mobile station to a reference strength.

14. (Currently Amended) The system of claim 13, wherein the reference strength takes into account a transmit strength of the signal transmitted by the first base station and an antenna gain of the antenna of the base station.

15. (Currently Amended) The system of claim 13, wherein the received strength includes a transmission power value of the signal transmitted by the first base station and received by the mobile station.

16. (Currently Amended) The system of claim 15, wherein the transmission power value includes a transmit strength of the signal transmitted by the first base station and an antenna gain of the antenna of the first base station.

17. (Previously Presented) The system of claim 12, further comprising a filter configured to discard position fixes involving rapid changes in the position.

18. (Previously Presented) The system of claim 12, wherein the mobile station comprises an omnidirectional antenna for receiving the signal from the antenna with the $cosec^2$ sensitivity pattern.

19. (Currently Amended) The system of claim 12, wherein the signal from the antenna with the $cosec^2$ sensitivity pattern provides a measure of the lateral ~~distance~~ distances between the base ~~station~~ stations and the mobile station.

20. (Currently Amended) The system of claim 12, wherein the lateral ~~distance is~~ distances are determined from a one way signal form the base ~~station~~ stations to the mobile station.

21. (Currently Amended) The system of claim 12, ~~further comprising a plurality of~~ wherein the base stations located at edges of the structure.

claim 22 (Canceled)

23. (Currently Amended) The system of ~~claim 22~~ claim 12, wherein the third base station is located on a roof of the structure and has the $cosec^2$ sensitivity pattern orientation vertically downwards.